What we claim is:

1. An organ or biological tissue preservation aqueous machine perfusion solution comprising:

a prostaglandin having vasodilatory, membrane stabilizing, platelet aggregation prevention upon reperfusion, and complement activation inhibitory properties;

a nitric oxide donor; and

a glutathione-forming agent.

2. The machine perfusion solution of claim 1 wherein the prostaglandin comprises prostaglandin E1.

3. The machine perfusion solution of claim 1 wherein the prostaglandin has cellular and organelle membrane stabilization properties and cytoprotective properties.

4. The machine perfusion solution of claim 1 wherein the nitric oxide donor comprises nitroglycerin.

5. The machine perfusion solution of claim 1 wherein the glutathione-forming agent comprises N-acetylcysteine.

6. The machine perfusion solution of claim 1 further comprising KH_2PO_4, sodium gluconate, magnesium gluconate, adenine, and ribose.

7. The machine perfusion solution of claim 1 further comprising $CaCl_2$, HEPES, glucose, mannitol and pentastarch.

8. The machine perfusion solution of claim 1 further comprising NaCl and KOH.

9. The machine perfusion solution of claim 1 wherein the prostaglandin comprises about 100-10,000mcg/L prostaglandin E1, the nitric oxide donor comprises about 1-15mg/L nitroglycerin, and the glutathione-forming agent comprises about 0.1-5mg/L N-acetylcysteine, further comprising:

about 40-160mM sodium gluconate;

about 10-50mM KH_2PO_4;

about 1-15mM magnesium gluconate;

about 1-15mM adenine;

about 1-15mM ribose;

about 0.1-2mM $CaCl_2$;

1-30mM HEPES;

about 1-30mM glucose;

about 10-100mM mannitol; and

about 40-60g/L pentastarch.

10. The machine perfusion solution of claim 1 wherein the prostaglandin comprises about 250-2,500mcg/L prostaglandin E1, the nitric oxide donor comprises about 3-8mg/L nitroglycerin, and the glutathione-forming agent comprises about 0.5-2mg/L N-acetylcysteine, further comprising:

about 60-100mM sodium gluconate;

about 20-30mM KH_2PO_4;

about 3-8mM magnesium gluconate;

about 3-8mM adenine;

about 3-8mM ribose;

about 0.3-0.8mM $CaCl_2$;

about 8-15mM HEPES;

about 8-15mM glucose;

about 15-50mM mannitol; and

about 45-55g/L pentastarch.

11. The machine perfusion solution of claim 1 wherein the prostaglandin comprises about 500mcg/L protaglandin E1, the nitric oxide donor comprises about 5mg/L nitroglycerin, and the glutathione-forming agent comprises 1mg/L N-acetylcysteine, further comprising:

about 80mM sodium gluconate;

about 25mM KH_2PO_4;

about 5mM magnesium gluconate;

about 5mM adenine;

about 5mM ribose;

about 0.5mM $CaCl_2$;

about 10mM HEPES;

about 10mM glucose;

about 30mM mannitol; and

about 50g/L pentastarch.

12. The machine perfusion solution of claim 1 further comprising at least one of distilled water and deionized water.

13. A preserved organ or biological tissue comprising at least one of a cadaveric organ and tissue within the machine perfusion solution of claim 1 in at least one of a deep hypothermic condition and physiological condition.

14. The preserved organ or biological tissue of claim 13 wherein the machine perfusion solution is infused through vasculature of at least one of a cadaveric organ, living donor organ, and tissue.

15. The preserved organ or biological tissue of claim 13 wherein the machine perfusion solution is infused over or through a vascular biological substance to maintain viability of at least one of the cadaveric organ and tissue during an ex vivo period.

16. The preserved organ or biological tissue of claim 13 wherein the deep hypothermic condition comprises a temperature of about 2-10°C.

17. The preserved organ or biological tissue of claim 13 wherein the physiological condition comprises a temperature of about 37°C.

18. A perfusion machine comprising:

a chamber that mimics at least one of a deep hypothermic environment and physiological environment; and

the machine perfusion solution of claim 1 that continuously circulates through the chamber.

19. The perfusion machine of claim 18 further comprising:

a unit for static monitoring of at least one of an organ and tissue.

20. An organ or biological tissue preservation aqueous machine perfusion solution comprising:

about 100-10,000mcg/L prostaglandin E1;

about 1-15 mg/L nitroglycerin;

about 0.1-5 mg/L N-acetylcysteine;

about 40-160mM sodium gluconate;

about 10-50mM KH_2PO_4;

about 1-15mM magnesium gluconate;

about 1-15mM adenine;

about 1-15mM ribose;

about 0.1-2mM $CaCl_2$;

1-30mM HEPES;

about 1-30mM glucose;

about 10-100mM mannitol;

about 40-60g/L pentastarch; and

about 700-900mL sterile water.

21. A method for preserving an organ or biological tissue comprising:

pouring the machine perfusion solution into a chamber that mimics at least one of a deep hypothermic environment and physiological environment, the machine perfusion solution comprising a prostaglandin having vasodilatory, membrane stabilizing, platelet aggregation prevention upon reperfusion, and complement activation inhibitory properties, a nitric oxide donor, and a glutathione-forming agent;

circulating the machine perfusion solution continuously through the chamber;

inserting at least one of a cadaveric organ and tissue into the chamber; and

flushing the at least one of a cadaveric organ and tissue with the machine perfusion solution.

22. The method of claim 21 wherein the flushing comprises:

infusing the solution through vasculature of the at least one of a cadaveric organ and tissue.

23. The method of claim 21 wherein the flushing comprises:

infusing the solution over or through an avascular biological substance of the at least one of a cadaveric organ and tissue to maintain viability during an ex vivo period.

24. The method of claim 21 further comprising:

monitoring parameters of the at least one of a cadaveric organ and tissue.

25. The method of claim 21 further comprising:

exsanguinating the at least one of a cadaveric organ and tissue; and

replacing the machine perfusion solution with at least blood to return the at least one of a cadaveric organ and tissue to a normothermic condition.

26. A method of preparing an organ or biological tissue preservation machine perfusion solution comprising:

providing a solution with sterile water;

adding sodium gluconate, potassium phosphate, adenine, ribose, calcium chloride, pentastarch, magnesium gluconate, HEPES, glucose, mannitol, and insulin to the solution; and

mixing prostaglandin E1, nitroglycerin and N-acetylcysteine into the solution.

27. The method of claim 26 further comprising:

mixing the solution until all components are dissolved.

28. The method of claim 26 further comprising:

infusing the pentastarch under pressure through a dialyzing filter;

centrifuging the prostaglandin E1 under hypothermic conditions; and

filtering the centrifuged prostaglandin E1.